SEP 27 2004 & 5

<u>PATENT</u>

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Kie Y. Ahn et al.

Examiner:

Andy Huynh

Serial No.:

10/786,354

Group Art Unit:

2818

Filed:

February 25, 2004

Docket:

303.686US3

Title:

MULTILEVEL COPPER INTERCONNECTS WITH LOW-K DIELECTRICS

AND AIR GAPS

## SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

MS Amendment Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 et. seq., the enclosed materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicants respectfully request that this Supplemental Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicants request that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicants with the next official communication.

Pursuant to 37 C.F.R. §1.97(b), it is believed that no fee or statement is required with the Supplemental Information Disclosure Statement.

The Examiner is invited to contact the Applicants' Representative at the below-listed telephone number if there are any questions regarding this communication.

The present application is either a U.S. national patent application filed after June 30, 2003 or an international application that entered the national stage under 35 U.S.C. § 371 after June 30, 2003. Thus, Applicant believes that the U.S. Patent & Trademark Office has waived the requirement under 37 C.F.R. 1.98 (a)(2)(i) for submitting a copy of each cited U.S. patent and each U.S. patent application publication. The waiver is provided in a pre-OG notice from the U.S. Patent & Trademark Office entitled "Information Disclosure Statements May Be Filed

## SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Serial No :10/786,354

Filing Date: February 25, 2004

Title: MULTILEVEL COPPER INTERCONNECTS WITH LOW-K DIELECTRICS AND AIR GAPS

Without Copies of U.S. Patents and Published Applications in Patent Applications filed after June 30, 2003" and dated July 11, 2003. Applicant acknowledges the requirement to submit copies of foreign patent documents and non-patent literature in accordance with 37 C.F.R. 1.98(a)(2).

Respectfully submitted,

KIE Y. AHN ET AL.

By their Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.

P.O. Box 2938

Minneapolis, MN 55402

(612) 349-9587

Date 24 Sept 19

Timothy B Clise

Reg. No. 40,957

<u>CERTIFICATE UNDER 37 CFR 1.8:</u> The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this <u>24th</u> day of September, 2004.

Name

Signature

PTO/SB/08A(10-01)
Approved for use through 10/03/2002, OMB 651-0031
US Patent & Trademark Office: U.S. DEPARTMENT OF COMMERCE
for the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number. Substitute for form 1449A/PTO Complete if Known INFORMATION DISCLOSURE 10/786,354 **Application Number** STATEMENT BY APPLICANT February 25, 2004 Filing Date (Use as many sheets as necessary) Ahn, Kie First Named Inventor **Group Art Unit** 2818 Huynh, Andy **Examiner Name** Attorney Docket No: 303.686US3

|                    | MANFMARY            |                  |  |          |          | <u> </u>                      |
|--------------------|---------------------|------------------|--|----------|----------|-------------------------------|
|                    |                     | US PA            | ATENT DOCUMENT                                     | <u>S</u> |          |                               |
| Examiner Initial * | USP Document Number | Publication Date | Name of Patentee or<br>Applicant of cited Document | Class    | Subclass | Filing Date<br>If Appropriate |
|                    | US-20010002333      | 05/31/2001       | Huang, Chao-Yuan ,<br>et al.                       | 438      | 637      | 03/29/1999                    |
|                    | US-1,254,987        | 01/29/1918       | Cooper, H. S.                                      |          |          | 10/15/1917                    |
|                    | US-1,976,375        | 10/09/1934       | Smith, J. K.                                       | 148      | 11.5     | 01/27/1931                    |
| - 1                | US20020109233       | 08/15/2002       | Farrar, Paul A.                                    | 257      | 762      | 04/05/2002                    |
|                    | US-2,244,608        | 06/03/1941       | Cooper, H. S.                                      | 75       | 138      | 02/09/1939                    |
|                    | US-2,842,438        | 07/08/1958       | Saarivirta, M. J., et al.                          | 75       | 153      | 08/02/1956                    |
|                    | US-3,147,110        | 09/01/1964       | Foerster, G. S.                                    | 75       | 122.5    | 11/27/1961                    |
|                    | US-3,506,438        | 04/14/1970       | Krock, R. H., et al.                               | 75       | 208      | 07/24/1967                    |
|                    | US-3,548,948        | 12/22/1970       | Richmond, W. J., et al.                            | 164      | 68       | 01/23/1969                    |
|                    | US-3,687,737        | 08/29/1972       | Krock, R. H., et al.                               | 148      | 2        | 07/17/1970                    |
|                    | US-3,923,500        | 12/02/1975       | Kitazawa, Kunio , et al.                           | 75       | 156.5    | 09/04/1974                    |
|                    | US-4,213,818        | 07/22/1980       | Lemons, Kyle E., et al.                            | 438      | 719      | 01/04/1979                    |
|                    | US-5,668,398        | 09/16/1997       | Havemann, R. H., et al.                            | 257      | 522      | 04/12/1996                    |
|                    | US-6,197,181        | 03/06/2001       | Chen, Linlin                                       | 205      | 123      | 03/20/1998                    |
|                    | US-6,268,277        | 07/31/2001       | Bang, D  | 438      | 619      | 07/16/1999                    |
|                    | US-6,448,331        | 09/10/2002       | loka, T., et al.                                   | 524      | 859      | 11/12/1999                    |

|                       | FOREIGN PATENT DOCUMENTS           |                  |   |          |             |    |  |  |  |  |  |
|-----------------------|------------------------------------|------------------|---|----------|-------------|----|--|--|--|--|--|
| Examiner<br>Initials* | Foreign Document No                | Publication Date | Name of Patentee or Applicant of cited Document | Class    | Subclass    | T² |  |  |  |  |  |
|                       | EP-0304046                         | 02/22/1989       | Fujimura, S., et al.                            | G03F     | 7/26        |    |  |  |  |  |  |
|                       | JP-05267643 With English           | 10/15/1993       | Muraoka, Toru                                   | 029      | 46          |    |  |  |  |  |  |
|                       | JP-07-321111 Vim English Abstracts | 08/12/1995       | Tetsuo, K.                                      | H01L     | 21/320<br>5 |    |  |  |  |  |  |
| 1                     | JP-07078815<br>Abstracts December  |                  | Miyamoto, I.                                    | HO1<br>L | 21/320<br>5 |    |  |  |  |  |  |

|                       | OTHER DOCUMENTS NON PATENT LITERATURE DOCUMENTS   |  |                |  |  |  |
|-----------------------|---|--|----------------|--|--|--|
| Examiner<br>Initials* | Cite Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the ite (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. |  | T <sup>2</sup> |  |  |  |
|                       |   | "Brooks Model 5964 High Performance Metal Seal Mass Flow Controller    |                |  |  |  |
|                       |   | (Introduced in 1991)", Brooks Instrument,                              |                |  |  |  |
|                       |   | http://www.frco.com/brooks/semiconductor/products1i.html,(1991),1 page |                |  |  |  |

**EXAMINER** 

Sheet 1 of 1

**DATE CONSIDERED**